

## REMARKS

### **STATUS:**

Applicant acknowledge receipt of the above-referenced, non-final office action wherein the Examiner has rejected the pending claims based on prior arguments and newly cited United States patent number 4,294,678 issued to Kuehnle (Kuehnle). All claims presently stand rejected as being obvious under 35 USC §103(a) – claims 1-3 and 5-8 as being unpatentable over JP Laid-open Gazette No.2001-203099 issued to Noguchi (Noguchi) in view of United States patent number 6,189,481 issued to Akimoto (Akimoto) and now Kuehnle; claim 4 as being unpatentable as applied to claims 1-3 and 508, and further in view of Matsumoto.

### **SUMMARY OF THE EXAMINER'S POSITION AS SUBMITTED BY APPLICANTS:**

Summarily stated, Noguchi is relied upon by the Examiner to establish a basic plasma processing apparatus while Akimoto is relied upon for its disclosure regarding the incorporation of shutters to adjust the size of at least one hole through which radiation emanates. Kuehnle is relied upon for its disclosure regarding the location of a shutter in at least one hole.

From the foregoing summary, it appears that the Examiner is advancing that Noguchi at FIG.3 discloses a chamber 30 having an opening, a dielectric member 31 covering the opening, at least one waveguide, a microwave oscillator, at least one hole, etc. The difference between claim 1 and Noguchi, for example, is that Noguchi fails to disclose hole area adjusting means. Regarding the adjustment of the hole area, Akimoto discloses providing a shutter 62 in conjunction with a microwave radiation port 32. The shutter can control the opening and closing the microwave radiation port. The opening and closing of the microwave radiation port can be controlled independently from outside of the chamber. Regarding providing at least one of a plurality of holes with a shutter in the hole, Kuehnle discloses providing a hole with a shutter, leading to sealing of the chamber.

**APPLICANTS' POSITION:**

While applicants may not agree with the Examiner's position that Noguchi and Akimoto in combination disclose all elements of claim 1 except for the location of a shutter with respect to a target hole, for the purposes of advancing prosecution of this application applicants have elected to question the applicability of Kuehnle to support the Examiner's rejection based upon obviousness under §103(a). If patentability of claim 1 can be established by applicants, then all remaining claims will similarly define over the prior art in view of their dependencies on claim 1.

As previously discussed by telephone with the Examiner and as advanced by argument in applicants' prior response, Akimoto fails to teach or disclose locating energy attenuating "shutters" (62) "in the holes" through which the plasma generating RF energy is delivered. Apparently conceding this deficiency in his argument, the Examiner has obtained a prior art reference that discloses the inclusion of a "shutter", not from a plasma processing apparatus but from a sputtering apparatus. As support for this proposed combination, the Examiner states "...it would have been obvious ... to have modified Noguchi et al. by utilizing hole area means as taught by Akimoto '481 and to have located the shutter in the holes as taught by Kuehnle because it allows for control of plasma distribution and for sealing the holes off from the chamber." Office Action at page 6, lines 1-5.

While applicants admit that Kuehnle does disclose an "in hole" shutter arrangement, the combination and reasons there for advanced by the Examiner must fail for several reasons. The purpose of the Kuehnle shutters is to prevent contamination of certain components by the ambient environment when the apparatus is not in operation. See, e.g., Abstract "In this way the target material is closed off from the ambient atmosphere which of necessity enters into the interior of the vessel when it is opened to be serviced." Thus, it cannot be maintained that Kuehnle's shutters

function to control operation of the deposition process, which is a premise to the Examiner's argument.

Having established that the purpose of Kuehnle's shutters is to address contamination issues associated with, for example, servicing of the apparatus, it cannot therefore be maintained, as advanced by the Examiner, that a skilled practitioner would be motivated to abandon the external shutters of Akimoto for the shutters of Kuehnle. First, the Examiner has failed to identify any deficiencies inherent in Akimoto that would motivate an ordinary skilled practitioner to research into the prior art for a solution; there is no problem for which a solution is needed. In other words, if it isn't broken there is no need to fix it. Thus, the only possible basis for the proposed combination is one having its genesis in hindsight, which is impermissible in this case.

Second, applicants submit that there is no disclosure or suggestion in any cited reference that establishes that the structure in Kuehnle would function as desired if incorporated into an apparatus constructed according to Noguchi and Akimoto. It appears to applicants that the motor, pinion gear and rack would all be exposed to the internal portion of the wave guide, and therefore subject to the electromagnetic wave energy. Applicants' submit that the skilled practitioner, lacking any motivation to abandon the shutters of Akimoto in the first place, would simply not port Kuehnle's shutter control system; it was designed for a different system and a different purpose.

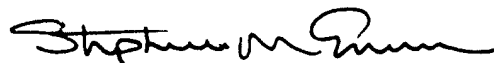
Third, applicants request the Examiner to support his assertion that "... [the shutter] allows for control of plasma distribution...." Office Action at page 6, lines 4-5. Applicants readily admit that these shutters are used for sealing the "holes" from the chamber, but not that they also are used for controlling plasma distribution. In all discerned instances, the methods and apparatus of Kuehnle is concerned with exposure to the ambient environment. There is no mention or suggestion that these shutters can or should be used during operation of the apparatus.

In summary, the proposed obviousness basis for rejection advanced by the Examiner can only be supported if impermissible hindsight is used. Because there is no problem to be solved in Akimoto that would motivate a skilled practitioner to adopt technology used in a different art and for a completely different purpose, it cannot be maintained that abandonment of the Akimoto shutter system in favor of the Kuehnle system is anything but motivated by hindsight. Lacking any motivation for doing so, or any indication that the shutter system of Kuehnle could function as a substitute for that of Akimoto, the Examiner's basis for claim rejection under §103(a) must necessarily fail. Therefore, with the only basis for rejection of claim 1 defeated, applicants submit that all pending claims, which depend from claim 1, are therefore allowable over the prior art of record.

Applicants submit herewith a Petition for Extension of Time (two months). Applicants submit that no further fees are due with the filing of this response; however, should any additional fees be deemed necessary in order to consider this response timely and proper, the Examiner is authorized to charge Deposit Account No. 07-1897 accordingly. Finally, if any matters remain unresolved after consideration of this response, the Examiner is strongly encouraged to contact the undersigned by telephone as soon as possible.

Respectfully submitted this 12<sup>th</sup> day of February 2007.

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